

CLAIMS

What is claimed is:

1. A portable computer system comprising:

a bus;

5 a processor coupled to said bus;

a housing comprising an electronic muscle material for causing said processor to behave in a prescribed manner when handled.

a display device comprising a selectable graffiti display area coupled to said bus and for providing a visual display; and

10 wherein said processor automatically causes said selectable graffiti

display area to be displayed in response to handling of said electronic muscle material.

2. The portable computer system of Claim 1 further comprising a

15 battery and wherein movement of said electronic muscle material causes charging of said battery.

3. The portable computer system of Claim 1 wherein movement of

said electronic muscle material causes said processor to sense handling by a

20 user for determination of left-handedness and right-handedness thereof.

4. The portable computer system of Claim 1 wherein said electronic

muscle material, when handled, is also for causing said portable computer system to enter a power-on state.

5. The portable computer system of Claim 4 wherein said processor is also for causing said portable computer system to enter a power-off state in response to said electronic muscle material not being handled for a predetermined time period.

5

6. The portable computer system of Claim 3 wherein, in response to said determination of handedness, said electronic muscle material generates a plurality of function buttons in the proximity of user fingers.

10 7. The portable computer system of Claim 6 wherein, in response to pressure on certain of said plurality of function buttons, said electronic muscle causes said processor to activate said selectable graffiti display area for enabling user input.

15 8. The portable computer system of Claim 7 wherein a portion of said plurality of function buttons vibrates to apprise user of relevant message being displayed.

20 9. The portable computer system of Claim 8 wherein a portion of said plurality of function buttons protrudes from said housing to apprise user of relevant message being displayed.

10. The portable computer system of Claim 1 wherein said electronic muscle material vibrates for apprising the user of a message being displayed.

25

11. The portable computer system of Claim 1 wherein said electronic muscle material conforms to the shape of user's hand for improved ergonomics.

12. The portable computer system of Claim 1 wherein said electronic muscle material conforms to shape of user's hand to generate contour data which is used by said processor to identify a user for purpose of user
5 authorization.

13. The portable computer system of Claim 1 wherein said electronic muscle material vibrates at a frequency as specified by said processor for use as a speaker.

10 14. The portable computer system of Claim 1 wherein said electronic muscle material vibrates at a frequency in response to external sound for use as a microphone.

15 15. The portable computer system of Claim 14 wherein the location of said vibration moves spatially about the housing for tracking a strongest sound signal.

16. A portable electronic device comprising:
20 a processor coupled to a bus;
a display module for displaying information and coupled to said bus;
a memory for storing information and coupled to said bus; and
an electronic muscle material for responding to pressure and for causing said processor to switch between power-on and power-off states.

25

17. A portable electronic device as described in Claim 16 wherein
said electronic muscle material comprises a plurality of buttons for user input.

18. A portable electronic device as described in Claim 17 wherein
5 said electronic muscle material generates information used by said processor
for detecting the placement of user fingers on said electronic muscle material.

19. A portable electronic device as described in Claim 18 wherein
locations of said plurality of buttons are defined based on said placement of
10 said user fingers on said electronic muscle material.

20. A portable electronic device as described in Claim 16 wherein
application of user pressure on certain portions of said electronic muscle
material causes said processor to activate a selectable graffiti display area of
15 said display module.

21. A portable electronic device as described in Claim 16 wherein a
portion of said electronic muscle material functions as a speaker.

20 22. A portable electronic device as described in Claim 21 wherein the
location of said portion is adjusted by said processor to optimize sound
characteristics.

23. A portable electronic device as described in Claim 16 wherein a
25 portion of said electronic muscle material functions as a microphone.

24. A portable electronic device as described in Claim 23 wherein the location of said portion is adjusted by said processor to optimize detection characteristics.

5

25. A portable electronic device as described in Claim 16 wherein said electronic muscle material generates information used by said processor for detecting the handedness of a user.

10 26. A portable electronic device as described in Claim 16 wherein said electronic muscle material generates information used by said processor for detecting the identity of a user.

15 27. A portable electronic device as described in Claim 16 further comprising a battery and wherein, in response to movement of said electronic muscle material, said electronic muscle material charges said battery.

20 28. A portable electronic device as described in Claim 17 wherein said processor is for exiting said power-on mode in response to said electronic muscle material not being handled for a predetermined period.

29. A method of altering the power state of a computer system comprising:

a) In response to a user applying pressure to an electronic muscle material disposed on said computer system, generating a signal wherein said signal is generated by said electronic muscle material; and
b) in response to said signal, powering on said computer system.

5

30. A method as described in Claim 29 further comprising automatically powering down said computer system after the expiration of a predetermined period of non-user-contact of said electronic muscle material.

10 31. A method as described in Claim 29 wherein said computer system is a personal digital assistant.

32. A method as described in Claim 29 wherein, in response to said signal, step b) comprises activating a selectable graffiti display area.

15